# Overcoming Barriers to Clean Energy

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# About
# The Regulatory Assistance Project

- Non-profit organization formed in 1992 by former utility regulators
- Principals are former regulators from Maine, Vermont, New Mexico and California
- Principal funding:
  - The Energy Foundation
  - US DOE and
  - US EPA
- Provides workshop and educational assistance to legislators, regulators and other government agencies

# Clean Energy Issues & Barriers

- Energy Efficiency
  - Customer Economics
    - Split incentives & benefits
    - Up-front capital
  - Utility Business Model
    - Presence of disincentives
    - Lack of positive incentives
  - Regulatory Approach
    - Benefit-cost tests
    - Lack of supply-side and demand-side parity
    - Rate design
- Customer-owned clean generation
- Utility-owned clean generation
- Future carbon constraints

# Energy Efficiency Solutions: Customer Economics

- Customer incentives
  - Traditional approach
  - Well-proven
  - Requires continuing program design effort
- Codes and Standards
  - Provides greatest potential
  - May be more politically difficult
  - Requires enforcement
- “Efficiency on sale” triggers for building efficiency
  - Energy Audits
  - Efficiency upgrades

# Energy Efficiency Solutions: Utility Business Model

- Throughput incentive
  - Cost and capitalization makes profits extremely sensitive to changes in sales (e.g. 1% sales ≈ 25% of profits)
  - Profit motives runs directly counter to public policy favoring efficiency
  - Decoupling revenues from sales eliminates this problem
- Positive incentives
  - Shared benefits
  - Cost capitalization/Bonus rate of return
  - Performance target & reward

# Energy Efficiency: Regulatory Policies

- Benefit-cost tests
  - Narrow tests (in particular the Ratepayer Impact Measure or "RIM" test)
    - Generally eliminate otherwise cost-effective energy efficiency from utility programs
    - Should be used at aggregate level only to judge overall impact of utility programs
    - Should not be used to screen programs
  - Broader tests (in particular the Societal Cost Test) more correctly reflect true benefits and costs of energy efficiency
- Supply-side and demand-side parity
  - Efficiency traditionally not viewed by utility planners as "equal" to supply-side solutions
  - Planning process should consider them as substitutes, using benefit cost analysis and least cost planning criteria
  - Demand-side resources need to be included as tools in utility planners' toolbox – not just wires and turbines or pipes and compressors

# Energy Efficiency: Regulatory Policies

- Price vs. Bill Dilemma
  - Consumer advocates traditionally focus on price effects
  - Energy efficiency may raise prices, but lower total cost to serve customers
  - Consumers advocates need clear charge to support all cost-effective energy efficiency as part of public interest function
- Rate Design
  - Inclining block rates should be tailored to reflect the end-use trends on system (e.g. if compressed A/C is the trend, set blocks to reflect energy usage of efficient vs inefficient new A/C compressors)
  - In carbon constrained world, carbon emissions may vary with time of day presenting new rate design challenges and opportunities

# Customer-owned Clean Generation

- Presents same revenue-profit problem as energy efficiency
  - Decoupling solves disincentive issues
  - Some energy efficiency positive incentives may work (e.g. performance target & reward)
- Also has safety and operational dimension
  - Utility planners (especially at the distribution system level) need training and experience
  - Many niche values may be present but not identified with traditional planning
- May run afoul of building codes, property covenants and land use restrictions or be perceived to be electrical code issue
  - May require legislation
  - Requires aggressive education and training of building and electrical inspectors
- With net metering, financial impact on utility and other customers may limit deployment to small penetration levels

# Utility-owned Clean Generation

- No utility profit issues as in customer-owned generation
- High front-end costs may:
  - Adversely impact prices early while delivering benefits later
  - Require modification of benefit cost analyses or use of alternative approaches
- Many renewable technologies do not meet traditional least-cost standards
  - Where Renewable Portfolio Standard is used, utilities need clear policy support to deploy renewable energy, including certainty in recovery of reasonable costs
  - Where no RPS, or for deployment of additional renewable energy, utilities need clear policy favoring deployment, but are likely constrained by overall price impact
  - Environmental externalities should be included in all analyses to assist in decision-making

# Dealing with Carbon Constraints

- Utilities may face tough choices now or in near future about new resources to build or buy
- High carbon choices may look cheaper today, but may be not be sustainable in a low-carbon world
  - May result in large stranded costs or unacceptably high cost burdens for carbon emitting resources when carbon costs become fully monetized
- In the meantime, all planning choices should include a value for carbon cost

# Essential Ingredient of Success: Leadership

- Legislators and regulators should provide clear and strong policy guidance to utilities, regulators and public advocates
- Utilities need to be frank about financial objectives and constraints associated with gaining their enthusiastic support of public policy goals
- Consumer advocates should recognize constraints of public policies favoring clean resources
- Policy framework should seek to reach clean energy and carbon goals at least-cost to society, while fairly allocating costs and burdens among utility customers

# Thanks for your attention

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